REMARKS

Claims 1,2, 4 – 7,10, 11, 13 – 21, and 23 - 30 remain in the present application.

103 Rejections

Claims 1-2 are rejected in the above referenced Office Action, under 35 U.S.C. 103 (a) as being unpatentable over Das (US patent # 6,640,209 B1). Applicant respectfully submits that the present claimed invention is neither shown nor suggested by the Das reference.

Specifically the present invention, as set forth in the independent Claim 1, recites:

> ... wherein said digital filter comprises linear predictive coefficients representing interfering periodic or quasi-periodic signals within a specified band containing said spread spectrum signal and wherein said linear predictive coefficients are discarded.

The present Office Action indicates the Das reference discloses a linear predictive coding (LPC) filter comprising linear predictive coefficients representing period signals within a specified band (column 2, lines 8 –31 and column 6, lines 4 –15) containing spread spectrum signal (column 7, lines 21 –23). Applicant respectfully asserts that to the extent the Das reference may mention in CELP speech coder the short term correlations or redundancies in the speech signal are removed by a linear prediction (LP) analysis (column 2, lines 8 –31 and column 6, lines 4-15), Applicant respectfully asserts the Das reference does not teach linear predictive coefficients representing

interfering periodic or quasi-periodic signals. In addition, to the extent the Das reference may merely mention spectral coding, Applicant respectfully asserts it does not teach or suggest linear predictive coefficients representing interfering periodic or quasi-periodic signals within a specified band containing said spread spectrum signal.

The present Office Action also indicates that the Das reference discloses the LP coefficients are discarded (column 1 lines 14 – 25 and column 6, lines 36 –39, the LPC in order to be adapted, the coefficients must be discarded for reconstructing and resynthesizing). To the extent that the Das reference may mention the use of speech analysis followed by resynthesis (column 1 lines22 – 24), Applicant respectfully asserts that the Das reference does not teach or suggest linear predictive coefficients representing interfering periodic or quasi-periodic signals within a specified band containing said spread spectrum signal are discarded. In addition, to the extent the Das reference may mention the LP analysis filter it teaches away from the present invention by indicting the LP analysis filter generates an LP residue signal R[n], which represents the error between the input speech frames s(n) and the reconstructed speech based on the quantized linear predicted parameters (column 6 lines 35 –40) which are provided to the MDLP encoder and not discarded (column 6 lines 40 – 45). Furthermore, Applicant respectfully asserts that even if LP analysis filter generates an LP residue signal R[n], which represents the error between the input speech frames s(n) and the reconstructed speech and the residual signal is discarded, Applicant respectfully asserts the Das reference teaches away from the present invention. Notably, the present invention utilizes the error coefficients to extract transmitted data rather than just discarding them.

Applicants respectfully assert that Claims 2 through 7 and 10 are allowable as depending from allowable independent Claim 1.

Claim 11 is rejected in the above referenced Office Action, under 35 U.S.C. 103 (a) as being unpatentable over Byrnes et al. (US patent # 6,256,609 B1). Applicant respectfully submits that the present claimed invention is neither shown nor suggested by the Byrnes reference.

Specifically the present invention, as set forth in the newly amended independent Claim 11, recites:

> a linear predictive coding filter for filtering out periodic or quasi-periodic signals in a spread spectrum system wherein the linear predictive coding filter outputs error information which is then used for signal processing purposes.

The present Office Action acknowledges that the Byrnes reference does not teach the LPC filter is used to remove periodic or quasi-periodic signals. To the extent the Byrnes reference may mention a filter, Applicant respectfully asserts that merely mentioning a filter does not teach or suggest filtering out periodic or quasi-periodic signals. In addition, Applicant respectfully asserts the Byrnes reference teaches away from the present invention by indicating the quasi-periodic signal passes through a linear filter rather than removing the quasi-periodic signal (column 1 lines 20 –22).

The present Office Action indicates that the Byrnes reference teaches a spread spectrum system (column 3 lines 41-55). To the extent the Byrnes reference may mention a power spectrum of filters and notes in the spectrum of

speech, Applicant respectfully asserts the Byrnes reference does not teach or mention a spread spectrum system. The present invention also indicates the Byrnes reference teaches the LPC filter outputs error information (column 16, lines 62 –65). To the extent the Byrnes reference may mention an error as measured by the coefficients of C(z) – A(z) from each frame is compounded in a measure of goodness to fit in a decision to accept the identity of a person (column 16 lines 62 – 65), Applicant respectfully asserts that the Byrnes reference does not teach the linear predictive coding filter outputs error information which is then used for signal processing purposes. Applicant respectfully asserts that to the extent the Byrnes reference mentions an error, the error in Byrnes relies upon retrieving a coefficient A(z) from a smart card and not an LPC filter (column 16 lines 55 – 65).

Applicant respectfully asserts that Claims 13 through 19 are allowable as depending from allowable independent Claim 11.

Claim 26 is rejected in the above referenced Office Action, under 35 U.S.C. 103 (a) as being unpatentable over Byrnes et al. (US patent # 5,940,971). Applicant respectfully submits that the present claimed invention is neither shown nor suggested by the Byrnes reference.

Specifically the present invention, as set forth in the newly amended independent Claim 26, recites:

a digital linear predictive coding filter having a lattice structure coupled to said antenna, wherein said digital filter is used to remove periodic or

quasi-periodic signals within a specified band containing said spread spectrum signal.

The present Office Action acknowledges that the Byrnes reference does not teach the LPC filter is used to remove periodic or quasi-periodic signals. To the extent the Byrnes reference may mention a filter, Applicant respectfully asserts that merely mentioning a filter does not teach or suggest filtering out periodic or quasi-periodic signals. In addition, Applicant respectfully asserts the Byrnes reference teaches away from the present invention by indicating the quasi-periodic signal passes through a linear filter rather than removing the quasi-periodic signal (column 1 lines 17 – 17).

The present Office Action indicates that the Byrnes reference teaches a specified band (column 2 line 64) containing the spread spectrum signal. To the extent the Byrnes reference may mention standard spectral features (column 2 line 64), Applicant respectfully asserts the Byrnes reference does not teach or mention a spread spectrum system.

Claim 29 is rejected in the above referenced Office Action, under 35 U.S.C. 103 (a) as being unpatentable over Byrnes et al. (US patent # 5,940,971) further in view of Leber et al. (US patent # 6,611,600 B1). Applicant respectfully submits that the present claimed invention is neither shown nor suggested by the Byrnes reference or Leber reference alone or together.

Specifically the present invention, as set forth in the newly amended independent Claim 29, recites:

A linear predictive coding filter for filtering out periodic or quasi-periodic signals in a spread spectrum system, wherein said filter comprises a gradient adaptive lattice.

The present Office Action acknowledges that the Byrnes reference does not teach the LPC filter is used to remove periodic or quasi-periodic signals. To the extent the Byrnes reference may mention a filter, Applicant respectfully asserts that merely mentioning a filter does not teach or suggest filtering out periodic or quasi-periodic signals. In addition, Applicant respectfully asserts the Byrnes reference teaches away from the present invention by indicating the quasi-periodic signal passes through a linear filter rather than removing the quasi-periodic signal (column 1 lines15 – 17).

The present Office Action indicates that the Byrnes reference teaches a spread spectrum system (column 2 line 64). To the extent the Byrnes reference may mention standard spectral features (column 2 line 64), Applicant respectfully asserts the Byrnes reference does not teach or mention a spread spectrum system.

The present Office Action indicates the Leber et al. reference teaches an adaptive filter (column 1 line 26) for modeling the feedback acoustic signal. To the extent the Leber reference mentions various systems with adaptive filtering are know, Applicant respectfully asserts the Leber reference does not teach or suggest a filter comprising a gradient adaptive lattice.

Conclusion

In light of the above-listed amendments and remarks, Applicant respectfully requests allowance of the remaining Claims. The examiner is urged to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

WAGNER, MURABITO & HAO

Date: 5/20, 2004

John F. Ryan
Reg. No. 47, 050
Two North Market Street
Third Floor
San Jose, CA 95113
(408) 938-9060